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Meeting
Second Tuesday of each month
Van Matre Senior Citizens Center
1101 Spring Street
Mountain Home, AR

President/Editor	Vice President	Secretary	Treasurer/Proof Reader
Brenda Johnson	Edward Hakesley	Janel Cotter	Dorothy Hess
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Members of the Midwest Federation of Mineralogy.

Sharon Waddell: Liaisons Officer - 417-256-8948

MWF Assistant Micromounter: Brenda Johnson

OBJECTS: To study and promote an interest in the earth sciences; Geology, paleontology, mineralogy, archaeology and the lapidary arts.

Meeting: The second Tuesday of each month at 7:00 p.m. in the Van Matre Senior Citizens Center, 1101 Spring Street (Cooper Park), Mountain Home, Arkansas

Dues: Active adults \$12.00 per year or family membership of \$20.00 per year. Junior membership is \$4.00 per year. Nonresident membership is \$8.00.

The President's Message

Here it is April already. Time is flying, but it is nice to see that spring is finally arriving. Warmer weather means field trips. I would like to plan a trip for drusy quartz soon so that we can invite the Northern Mississippi club members to accompany us. We also need to plan a trip to collect geodes before it gets to hot and the insects are on the move. Be thinking of what days would be best for the majority of the membership as soon as possible. We also need to think of going for quartz in the Mt. Ida area before it gets to hot. I know all of you can't go because of jobs and some because of finances, but if we can get enough to make the trips profitable for our club show (spin-and-win, grab bags and sales), we need to do it soon.

Harvey and I had the opportunity to go on the fossil collecting trip to Jasper, Alabama with the Northern Mississippi Club as guests of the Northern Alabama Paleontological Society. It rained most of the time we were collecting, just a drizzle, but we found some very interesting tracks and other Pennsylvanian fossils and enjoyed ourselves. One of the mines we went to is being reclaimed and will probably not be available for collecting again in the future.

So many of our collecting areas are being taken away, it is important that we remember that just because the club is a member of the ALAA, that doesn't mean that we should not write letters to Washington D.C. to voice our opinion on rulings concerning this. Please stay aware of all the upcoming bills and do all you can to preserve our rights as collectors.

It was wonderful to see so many guests at our last meeting and to have a family become members. That is what we need most, so please continue to encourage others to attend.

Stay safe and I look forward to seeing you at the next meeting.

Brenda

We had no executive meeting in March due to so many traveling.

The Minutes of the March, 2010 Meeting, Janel Cotter, Secretary

The meeting was brought to order at 7:00 p.m.

A motion was made by **Julia Blanchard** and seconded by **Keith Blanchard** to accept the minutes from the January meeting. There was no meeting in February due to the weather.

Dorothy Hess read the Treasurers report, reporting a balance of \$1,236.51.

There were several guests who attended: **Terry Cunningham, Bob Conant, Karla and Travis Bouck, Phyllis and Anthony Pecelunas, Gerard, Lisa and Leigha Wasson.**

Chris Carter from the Jewel Chest gave an awesome presentation on *Diamonds*. **Mr. Carter** explained the unique culture of the diamond world and shared his experience in buying diamonds. It was a very informative session on how and where diamonds are mined. He also explained to the group about Antwerp, which is perhaps the most noteworthy diamond-cutting center in the world.

A field trip was scheduled for Jasper Alabama on March 13, 2010 to search for plant fossils (ferns) and ancient tracks.

The Micromount meeting was set for March 27, 2010 at 1:00PM at the home of **Sid & A.J. Johnson.**

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Equipment

RAH-RAH, THE COMPLETE ROCKHOUND

By Mel Albright - RMFMS Safety Chairman

http://www.amfed.org/a_safetyRMFMS.htm#Equipment

From the desk of Aradasa Johnson, Safety Chair

Are you the type of rockhound that has everything you need for your hobby? Do you consider your equipment complete? Are you all decked out with all the gadgets you need? May I suggest another group you may not have? Safety equipment. It's all available at WalMart, at your local hardware store, at the pesticide store, at local stores specializing in safety. Most are inexpensive. All are inexpensive compared to the injuries, losses and deaths they may prevent. A few:

Hearing protectors. These vary from foam plugs for your ears to special plugs that allow you to hear speech to earmuff types like you've seen baggage handlers wear at the airport to super-duper ones that are electronic and cancel out undesirable sound waves.

Masks. There are a great variety of types. The simplest are simple dust masks - with or without eye covering. Then there are solvent masks for use when around solvents. And chemical masks for use when around undesirable chemicals and in spraying pesticides. And special masks for special things - asbestos, carbon monoxide, chlorine, etc. And the most sophisticated which either supply air with them or have tubes leading out of the dangerous zone to an air supply.

Shoes. There are safety shoes. They have a steel cap in the toe which protects your feet from heavy objects hitting them. There are rubber boots to protect you from water and dangerous sludges (or fresh cement). There are hiking boots especially designed to support your ankles in rough terrain.

Fire Extinguishers. There are three general types - no matter what chemicals are inside them. One (Class A) is for use only on fires such as paper and wood. One (Class B) is for use on electrical fires. One (Class C) is for use on solvent type fires. Some fillers are safe for use on more than one class of fire - and will be labeled for more than one class. Best of all is a Class A,B,C extinguisher which is good for any fire. They come in several sizes. Little ones are cheap, but often run out too soon. Get a larger one.

Gloves. Gloves do more than stop blisters. They also protect the hands. Best for hand labor are leather type ones such as the horsehide ones found in farm and garden stores. The other type is plastic or rubber which will protect the hands from solvents, acids and or hazardous materials.

Eye and Face shields. These come from the simple safety goggle (which will go over your glasses, if needed.), to safety glasses (NO, your "safety" glasses from the optometrist do NOT qualify - industrial standard safety glasses are needed.), to face shields which cover both the eyes and the whole face.

Aprons. Cloth aprons protect your clothing from messes. Rubber or plastic ones protect you from chemical burns and the like.

Hard Hat. Approved hard hats are readily available and work wonders when something falls on your head. Cold? Wool liners are available.

The complete rockhound probably has all of these - do you?

Amber

by J.P. Jutras

Amber, which is also known as the 'gold of the north', is one of the oldest material used for adornment that is known today. Evidence of its use go back to archeological digs dated around 35 - 45,000 years ago by primitive societies around the Baltic Sea. It was traded from the north with the Greeks and Romans 2500 years ago. It is mentioned in many Greek books that have made their way to us, one of which is Homer's classic Iliad which recounts the sack of the Greek city of Troy in approximately 1200 BC.

Amber is the fossilized sap of trees which have been buried millions of years ago. As the sap flowed from the still living tree, various insects, plant remains and the occasional lizard or frog may have been trapped by the viscous fluid. These were preserved through the ages and some are in such an excellent state of preservation that DNA has successfully been recovered from these extinct life forms (but there is no evidence in the available literature that someone may have cloned dinosaurs from this DNA...at least not yet!)

As amber is an organic compound whose average composition runs something like $C_{10}H_{16}O$, it is not a mineral or a true gemstone'. The fossilization process renders the compound compact, hard and resistant to chemical attack by various solvents. Although the hardness of this material is not that great (average 2 ½ on the Moh's scale, or slightly harder than a fingernail), it can be and is commonly used in rings, broaches and pendants. It can be almost any color but the most abundant material tends to be in the yellow-orange range. Red, green and blue amber can also be found but is much more scarce. The relative softness of amber is no doubt one of the reasons for it's early use as it is readily workable with hand tools. Amber can easily be worked with sandpaper and polished with a fine cloth. A good start may be 220 grit paper then, 320, 600 and 1200 grit with polishing done on a small buff with ZAM or a similar compound.

Amber's specific gravity (S.G.) ranges between 1.06 to 1.08 but can be as high as 1.30. The light weight of amber allows it to float on salt water, which is a useful trick to tell amber apart from plastic or glass imitations as most of these will sink in a solution of water and 2 1/2 tablespoons of salt. The fact that amber floats in sea water is the reason why the beaches of the Baltic Sea have always been renowned hunting grounds for this gem material. The actual amber-bearing clay beds lay at the bottom of the sea and are occasionally turned over by strong surf and wave action during storms. The amber is loosened and then floats to shore where it can be collected on the beaches.

Apart from the Baltic Sea and Poland (where the amber is mined from terrestrial deposits), historical sources of amber have included Burma, Sicily and Romania. New sources of material include the very prolific Dominican Republic deposits where amber is mined from hard rock in the mountains and where some of the nicest blue and red amber comes from. The largest piece of amber on record from the DR weighted 17 ½ pounds.

Amber continued-

Mexico and Columbia are two new commercial sources of amber on the market. Supply is sporadic but the quality is reported to be good in terms of size and color of the material. One should be careful as some of the material reported from Columbia may be softer, younger tree sap known as copal. Copal is essentially the same material as amber but has not undergone the fossilization process and is therefore not as hard nor as resistant to chemical attack as real amber. The lapidarist will know that he has copal when he tries to polish his piece and the material starts to deform and flow with the buildup of heat caused by the polishing process. Another test is to put a drop of ethyl alcohol on a piece of suspect amber. True amber will not be affected but copal will be attacked by the alcohol and start to soften within 20-30 seconds. At this point, the material will 'pull' at the fibers of a cotton ball used to wipe the alcohol. These tests are 'quick and dirty' ones which offer good guidelines but guidance should be gained from experts if a serious problem arise.

Amber is commonly treated to remove a haze due to numerous small fluid inclusions. The treatment is essentially that of slowly heating the material in oil or, as the Roman Pliny the Elder suggested, to "boil the amber in the fat of a suckling pig". One of the effects created with a special technique of rapid heating and cooling (which remains a trade secret) is that of the famous leaf-like inclusions often referred to as 'sun-spangles'. Small pieces of amber can also be heated to the point where the material will start to flow (180° - 250° C) and then be pressed together to produce large pieces of what is known as 'pressed amber' or 'ambroid'. Elongated bubbles and distinct flow lines between the different pieces of amber forming the larger piece are tell tale signs of the reconstruction process.

Closer to home, amber is commonly found in association with the Cretaceous coal seams of Alberta as well as in the badlands, in the Drumheller area. Nice pieces to about 1 inch have been reported. A much larger occurrence is at Cedar Lake, in Manitoba, where the amber is found on one of the lake's beaches. Between 1895 and 1937, the Hudson's Bay Company reportedly mined more than a ton of amber from this deposit to make ... varnish.

From the 220 million year old amber of the Bavarian Alps to the 16 million year old pieces from the Dominican Republic, much amber has been found and used for jewelry, trading and scientific research. An excellent book for those who would like to know more is "The quest for life in amber" by George and Roberta Poinar (Addison-Wesley publishing company, ISBN #0-201-62660-8). Although somewhat technical at times, it is a fun read and has a great bibliography for those who want to dig out more references.

Via the Journal, February, 2010

U.S. Sitting on Mother Lode of Rare Tech-Crucial Minerals

Jeremy Hsu

TechNewsDaily Contributor

LiveScience.com **Jeremy Hsu**

technewsdaily Contributor

livescience.com – Tue Mar 9, 12:00 pm ET (Via **Ed Hakesley**)

China supplies most of the rare earth minerals found in technologies such as hybrid cars, wind turbines, computer hard drives and cell phones, but the U.S. has its own largely untapped reserves that could safeguard future tech innovation.

Those reserves include deposits of both "light" and "heavy" rare earths - families of minerals that help make everything from TV displays to magnets in hybrid electric motors. A company called U.S. Rare Earths holds the only known U.S. deposit of heavy rare earths with a concentration worth mining, according to a recent report by the U.S. Geological Survey (USGS).

Light rare earths include the minerals ranging from lanthanum to gadolinium on the periodic table of elements, while heavy rare earths range from terbium to lutetium.

Averting disaster

If developed, such deposits could help the U.S. avoid a possibly crippling rare earth shortage in the next decade. China has warned that its own industrial demands could compel it to stop exporting rare earths within the next five or 10 years.

"There is already a shortage, because there are companies that already can't get enough material," said Jim Hedrick, a former USGS rare earth specialist who recently retired. "No one's trying to expand their use of rare earths because they know there's not more available."

U.S. Rare Earths practically stumbled upon its first rare earth deposit at Lehmi Pass, on the border between Idaho and Montana, about 15 years ago. The company founders coveted the area's reserves of thorium - an alternative nuclear fuel - and took little interest in the rare earths that were only used, at the time, in lighter flints and tracer bullets for the military.

Their view changed over the years as rare earths became practically irreplaceable in high-tech products used by millions of people today. The company only recently changed its name to U.S. Rare Earths after staking out another deposit at Diamond Creek, Idaho.

"The fact is, the Diamond Creek property is today, the most accessible, undeveloped rare earth resource with significant [heavy rare earths] that there is in North America," said Jack Lifton, an independent consultant who works with U.S. Rare Earths.

Crucial Minerals continued

Recent USGS figures estimate that the U.S. holds rare earth ore reserves of up to 13 million metric tons. By contrast, the entire world produced just 124,000 metric tons in 2009 - but it would take both time and money for the U.S. to become self-sufficient in producing rare earths.

Deposits near civilization

The Diamond Creek location has the added advantages of being in mining-friendly Idaho and having access to nearby highways and power lines - factors that would make opening a mine much easier.

"We have power, light and roads, so we're not in the middle of the wilderness," said Ed Cowle, CEO of U.S. Rare Earths.

Cowle hopes to attract enough funding over the next six months to do some exploratory drilling at his company's deposits. He also pointed to growing interest from national legislators in prodding the federal government to take action.

"Many times opening a mine takes a certain period of time, but if there's a strategic need for material from government, that time period can be lessened," Cowle told TechNewsDaily. "We're hopeful of that because of the nature of what's in the ground."

An expensive proposition

Another company, Molycorp Minerals, has already begun processing "light" rare earths, such as lanthanum and neodymium, from a stockpile it accumulated at its mine in Mountain Pass, California. But it still has to ship its rare earths to China for final processing, because only China currently has the equipment needed for the job.

"No one [in the U.S.] wants to be first to jump into the market because of the cost of building a separation plant," Hedrick explained. The former USGS specialist said that such a plant requires thousands of stainless steel tanks holding different chemical solutions to separate out all the individual rare earths.

The upfront costs seem daunting. Hedrick estimated that opening just one mine and building a new separation plant might cost anywhere from \$500 million to \$1 billion and would require a minimum of eight years.

Lifton has also suggested that many U.S. companies have not jumped into the market because China's state-owned mines keep rare earth prices artificially low. But if U.S. companies do not begin mining American rare earth deposits soon, they may be left scrambling if China does one day stop exporting rare earths.

But Cowle, the CEO of U.S. Rare Earths, seems hopeful that momentum has already begun building for the U.S. government to encourage development of its own rare earth deposits.

"From what I see, security of supply is going to be more important than the prices," Cowle said.

How to Grow a Big Alum Crystal

Alum crystals are probably the easiest crystals to grow. The chemical is non-toxic and the crystals grow quickly and reliably. Alum is found in the 'spices' section of the grocery store. With a bit of time and effort, you can grow a big alum crystal.



Difficulty: Easy

Time Required: Days to Weeks

Here's How: Pour 1/2 cup of hot tap water into a clean jar. Slowly stir in alum, a little at a time, until it stops dissolving. Don't add the whole amount - just enough to saturate the water. Loosely cover the jar with a coffee filter or paper towel (to keep dust out) and allow the jar to sit undisturbed overnight. The next day, pour the alum solution from the first jar into the clean jar. You will see small alum crystals at the bottom of the jar. These are 'seed' crystals that you will use to grow a big crystal. Tie nylon fishing line around the largest, best-shaped crystal. Tie the other end to a flat object (e.g., Popsicle stick, ruler, pencil, butter knife). You will hang the seed crystal by this flat object into the jar far enough so that it will be covered in liquid, but won't touch the bottom or sides of the jar. It may take a few tries to get the length just right. When you have the right string length, hang the seed crystal in the jar with the alum solution. Cover it with the coffee filter and grow a crystal! Grow your crystal until you are satisfied with it. If you see crystals starting to grow on the sides or bottom of your jar, carefully remove your crystal, pour the liquid into the clean jar, and put the crystal in the new jar. Other crystals in the jar will compete with your crystal for alum, so it won't be able to get as big if you let these crystals grow. Tips: You can use sewing thread or other string instead of nylon fishing line, but crystals will grow on the entire length of the submerged string. Crystals don't adhere to nylon, so if you use it, you can get bigger, better crystals. Alum is an ingredient used to make pickles. It makes them crispy. What You Need: 1/2 cup of hot tap water, 2-1/2 Tablespoons of alum, nylon fishing line, pencil, ruler, or knife, two clean jars, a spoon, and coffee filter or paper towel.

Via the Journal, February, 2010

Refreshments are by **Edward Hakesley** this month.

Welcome to new members, **John and Karla Bouck** and son **Travis**.

Our theme for these months show-and-tell table is **carbonate minerals**; Smithsonite, siderite, rhodochrosite, aragonite, witherite, Cerussite, dolomite, Aurichalcite, malachite, azurite, to name a few.

FedEx fossil arrives 300m years late

A fossil amphibian has come to light on land owned by FedEx and has been named Fedexia striegeli



The amphibian Fedexia striegeli, found on FedEx land, lived during a time of dramatic climate change. Photograph: Mark A. Klingler/Carnegie Museum of Natural History

Ian Sample, science correspondent
guardian.co.uk, Monday 15 March 2010, www.geology.com

Fossil hunters have named a 300m-year-old amphibian in honor of the courier service FedEx, after unearthing the creature on land owned by the company near a US airport.

The remains of the ancient amphibian, which lived 70m years before the first dinosaurs, were recovered in 2004 from a slab of rock near Pittsburgh International Airport by Adam Striegel, an amateur fossil enthusiast on a geology field trip.

Researchers at the Carnegie Museum of Natural History in Pittsburgh described the creature on the basis of its remarkably well-preserved 12cm-long skull, which survived fossilization without being crushed.

Fedexia striegeli continued -

A group led by David Berman, curator of vertebrate paleontology at the museum, identified the amphibian as a new genus and species, *Fedexia striegeli*, in the institution's journal, *Annals of Carnegie Museum*.

Fedexia belongs to a family of extinct amphibians called trematopidae, which lived at a time when the Earth's climate was in the throes of a dramatic transition. The planet's oceans were increasingly becoming locked up in polar ice, causing sea levels to drop and vast swathes of land to become drier and warmer.

Gradually, some groups of amphibians, including the trematopids, left their mostly aquatic environments and became more adapted to a terrestrial habitat, returning to the water perhaps only to mate or lay eggs.

The remarkable preservation of its skull allowed paleontologists to identify *Fedexia* as a trematopid, mainly by a hallmark feature of the group: an elongated external nasal opening.

When it died, what is now Pittsburgh was situated near the equator and experienced huge downpours, making an ideal environment for amphibians to flourish.

"What is particularly amazing about this discovery is that it was made by an amateur who had no prior experience in recognizing vertebrate fossils in the rock, a talent that usually takes years to develop," said Berman.

Copernicus Invented Geology, Study Claims
The science of geology may be considerably older than once thought.

By Larry O'Hanlon | Thu Mar 11, 2010, www.geology.com

The modern science of the Earth has long been thought of as starting about 300 years ago, at most. But two geologists now argue that Copernicus, the renown Polish astronomer, set the stage for the modern science more than 500 years ago when he recognized that Earth was not only not the center of the universe, but a planet.

If so, they say, then geology deserves a little more respect as a basic science with deep roots.

"Everybody has heard of the Copernican Revolution," said Walter Alvarez, lead author on a paper addressing the matter in the latest issue of the journal *Geology* and a professor at the University of California at Berkeley. But that revolution has always been associated with physics and astronomy, he said. "Geology is almost an afterthought."

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Who Invented Geology continued -

As a result, geology -- at least in the English and American histories of it -- is thought of as commencing with Scottish geologist James Hutton and the "Geological Revolution" of the late 18th and early 19th centuries. That's when scientists recognized that rocks and fossils told the story of a very old Earth with a complicated history.

But in other traditions around the world, Earth science, which includes geology as well as marine and atmospheric sciences, started much earlier, and even includes voyages of discovery by the Portuguese in the 1500s, said Alvarez, whose co-author on the paper is science historian Henrique Leitao of the Universidade de Lisboa in Portugal.

April 24-25-- Memphis Mineral, Fossil, Jewelry Show. Sponsored by the Memphis Archaeological and Geological Society. Memphis International Agricenter, Saturday, April 24 9-6:00 and Sunday, April 25 10-5, Dealers, Exhibits, Kids Area, Speakers Program. Adults \$5.00, Children 12 and under \$2.00. Scouts in uniform free. Portion of admission benefits the Ronald McDonald House of Memphis. web: www.theearthwideopen.com, email info@theearthwideopen.com. 901 274-7706

We need the following areas covered for our show in August (28-29) to help:

Silent Auction Table for both days, Saturday from 10:00-6:00 and Sunday from 10:00-4:00

Raffle/Information Table: Two people, Saturday 10:00 – 6:00. **Brenda Johnson** has said she will work as a relief for those who need breaks.

We need one more person who will help with the set up on Saturday morning at 7:00 and two people to help with the break down on Sunday afternoon at approximately 5:00 p.m.

We also need someone who will be responsible for refreshments.

Please see **Brenda Johnson** or **Ed Hakesley** to sign up.

April, 2010 Ozark Earth Science Gem, Mineral & Fossil Club Page12

Our March program was a very interesting program presented by **Chris Carter** of the Jewel Chest in Mountain Home, on diamonds and how they are graded, bought and cut in different cuts. It is always nice to have persons who will come and give a program such as this one. If you know of anyone, or if you yourself would be willing to do a program, please let us know.

Our program for this month will be a DVD on photographing minerals.

Treasurer's Report:

Income total	\$60.00
Expense total	\$140.00
Check Book Balance as of March 8, 2010	\$1,236.51

Minutes Continued---

Ideas for future field trips were tentatively discussed. The possibilities include Black Rock, Arkansas, or a geode hunt in Illinois.

Door prizes were won by: **Keith Blanchard ---** and **Kirk Schmitt**.

Raffle prizes were won by **Harvey Johnson** and **Travis Bouck**.

Show and Tell was presented by **Edward Hakesley** who displayed an interesting arrangement of sulphates and **Harvey Johnson** who had an interesting story of a rewarding auction trip where he bought many specimens of old tri-state.

One of our guests brought in a round stone he discovered while digging a grave site. It appeared to be a shaman stone, but no one was certain??

The meeting was adjourned at approximately 8:30 with everyone getting to greet the new members and guests. Fantastic refreshments were enjoyed by all and furnished **Sid & A.J. Johnson**.

Man alive, guess who's 55? **Happy Birthday Eddie O'Dell!**

Dates to Remember

April

3 – 4 Lincoln, NE 52nd Annual Show, Lancaster Event Center, 4100 N 84th Street

10 – 11 Marion, IL Williamson County Pavilion, 1602 Sioux Drive

10 – 11 Des Plaines, IL Des Plaines Park District Leisure Center, 2222 Birch Street

17 North Little Rock, AR Central Gem and Mineral Swap, Burns Park, Elder Johnson Pavilion (next to the visitors center), I40 Exit 150, Military Drive.

23 –25 Decatur, IL 57th Annual Mineral Show, Macon County Fair Grounds, 3700 Westlawn Avenue.

24-25 Fort Dodge, IA Webster County Fairground, Old Highway 169.

Dorothy Hess, Publisher

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